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## 7. REPORT OF THE OCCURRENCE OF THE METAD IN WEST BENGAL

In the afternoon of the 17th February, 1978, while digging rodent burrows in a harvested paddy field, south of Apurbapur village near Singur in Hugli District, we caught an adult female rat with five juveniles, which were identified as of the Soft-furred Field Rat or Metad, *Millardia meltada* (Gray).

The known distribution of *Millardia meltada* (Gray), is Bihar, Uttar Pradesh, Nepal Tarai, Punjab, Haryana, Rajasthan, Peninsular India south of the Satpura-Vindhya ranges, south to Nilgiris, south-western Sri Lanka, parts of Gujarat and the adjacent region of Pakistan, but does not include the north-eastern part of India (Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Tripura and Mizoram), Orissa and West Bengal. The present collection, therefore, constitutes the first authentic record from West Bengal.

The details of the specimen is given below. The external measurements were taken in the field and are in mm.

Material: 1 ♀; ZSI Reg. No. 19935; in alcohol; 17.2.78; A. K. Mondal Coll.

Measurements: External—Head and body 111.0; tail 76.0; hind foot 22.0; ear 20.0.

Cranial—Occipitonasal 31.4; condylobasal 30.5; nasal 11.5; palate 16.4; bulla 6.1; tooth row 5.6; anterior palatine foramina 7.4; diastema 8.8.

In comparison with the recognised subspecies of *Millardia meltada* namely, the *Millardia meltada meltada* (Gray) and the *Millardia meltada pallidor* (Ryley), the present material is much darker. However, without examination of additional material nothing definitely could be said of its subspecific status.

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*September* 21, 1978.

## 8. SOME OBSERVATIONS ON THE BIOLOGY OF THE OPENBILL STORK, *ANASTOMUS OSCITANS* (BODDAERT), IN SOUTHERN BENGAL

(*With a plate*)

The Openbill Stork [*Anastomus oscitans* (Boddaert)] is the smallest and commonest stork of our country.

This paper reports on observations made in South Bengal in Saknakhali bird sanctuary in the Sundarban Reserve Forest, Sagar Island, Frazergunge and Diamond Harbour by the author from 1975 onwards.

The Openbill is a tree-nester. Generally it forms a huge breeding colony of its own but also nests in a breeding colony with other birds. In the Sajnakhali bird sanctuary, Sundarban, the breeding colony included such species as the large egret (*Egretta alba* Linn.), smaller egret (*Egretta intermedia* Wagler), little egret (*Egretta garzetta* Linn.), little cormorant (*Phalacrocorax niger* Vieillot), paddy bird [*Ardeola grayii* (Sykes)] and some others.

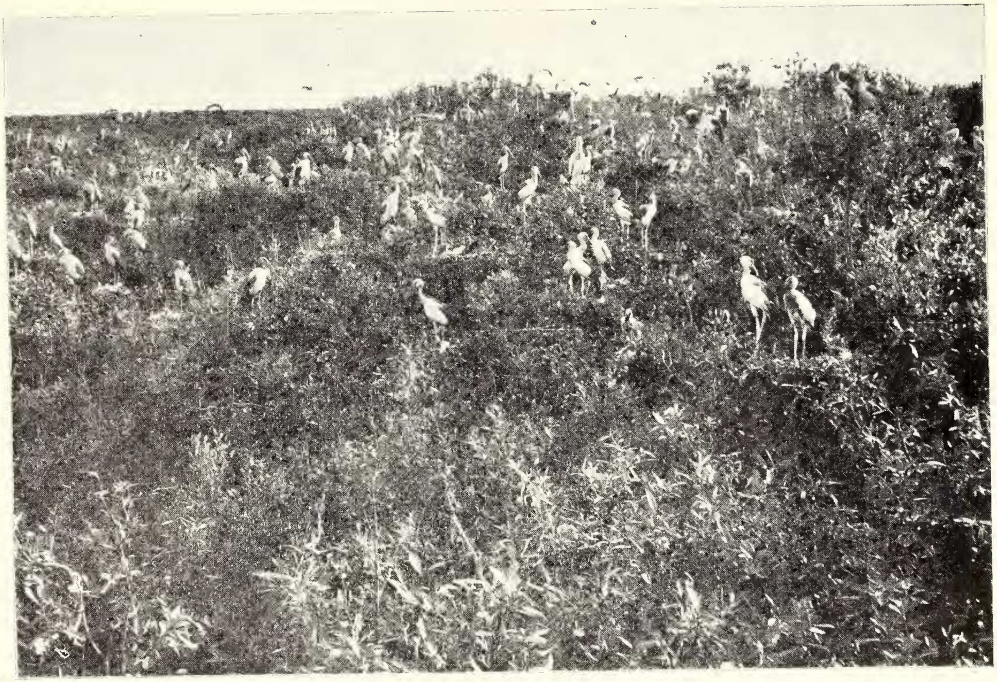
The situation and size of the breeding colonies depend to a great extent on the available marshy conditions, richness of feeding ground in the vicinity and non-interference by predators and man. Colonies have been found very close to human quarters, roads and railway stations, where birds are not disturbed or pestered. Some colonies are found in impassable marshes in dense forested area on isolated islands for safe raising of the brood.

### Pair formation and pair bond

Since the male and female are almost alike in general appearance in the non-breeding period, sexes cannot be differentiated, but during the breeding period it becomes possible to distinguish them by their behaviour, specially the attitude of the male towards the female. The males are rather more aggressive quarrelling amongst themselves for nesting space than the females. At times, subadult males have been found courting adult females, but such females simply change their perch and pay little heed to them. Consort pairs are formed just before the monsoon starts. Such pairs often forcibly push each other which compels one of them to fly from the perch and again after a short flight return to occupy the same place in close proximity of its partner who waits for its mate. Courtship display is not very conspicuous. The male has been observed at times to throw its neck backward when the female returns from flight. After sometime the male stretches its neck up and partially opens its wings and bill. The male offers a stick to the female and if it is accepted by the female, it signifies approval of pair formation. In selecting the nesting site the male and female perform a ritual. They perch face to face, lower their heads and point at the nest-site with their bills partly open. After this act the pair flies away but returns to the spot. The same performance is repeated three or four times within an hour. When the site selection is finalised the male is also finally accepted by the female.

### Nest-building, Sexual display and Mating

The bird selects trees that are from three to ten metres high. In Sundarban (Sajnakhali) most of the nests that I came across were hardly four to five metres from the ground level. The host plants selected for nesting were mostly Bina, *Avicennia alba* and *Avicennia officinalis*, which represented about 80 per cent of the plant community. These provided better support due to ramification of branches, and also the canopy provided wider landing space which generally varied from 9 to 16 square metres. The next choice was the Genga, *Excoecaria agallocha*, which represented roughly 15 per cent. Other trees that were sometimes selected were Passur, *Xylocarpus* sp., Goran, *Rhizophora* sp., and Kulsi, *Aegiceras* sp., but these were comparatively of small percentage. In Diamond Harbour, trees that were used for nesting were Jarul, *Lagerstroemia flosreginae*, Neem, *Melia azadirachta*, Peepul, *Ficus religiosa*, etc. It seems that the bird does not bother much about the height of the trees, some 10-12 metres height was mostly preferred, whereas in Sagar Island and



Intensive nesting area of the Openbill Stork in Sajnakhali Bird Sanctuary, Sundarban, West Bengal.

Frazergunge areas the nesting tree heights were only five to seven metres. Nesting sites were generally not changed in the following year unless there was disturbance in the area.

The tree-tops are the first choice of nesting site and when this is not available, alternative sites are selected further down. Generally tree-forks are the usual sites for nests. Trees which provide a good number of forks are preferred. Since the birds are gregarious, congregation is quite dense; naturally there is overcrowding and struggle for space. Nests may be 60 centimetres apart, but there is a good understanding between the breeding pairs in the colony. The male with nest-building material flies straight to the nest-fork, and as soon as it perches it drops the material, and the female which waits at the rim of the nest makes a guttural buzzing sound on the arrival of the male, and the freshly brought material is then properly arranged. The male erects the neck and exposes the breast feathers and produces a buzzing sound and both bend their heads over the nest. It is interesting to note that the sticks that are brought by one of the partners, generally the male, is examined by the other. During this process the material that falls down is not picked up. Sometimes the female rejects the material brought by her partner. In Sundarban heronry, as many as 30 trips per day were counted in connection with the nest-building operation during the whole day in the beginning but the trips were gradually cut off as the nest under preparation was half way to completion. After almost half the nest is ready the pairs mate usually in the late afternoon or any time on a cloudy day. The act is performed when the female settles herself on a branch near the nest. The male vigorously beats the beak of the female with his own, thereby producing a clattering sound which coaxes the female to bend her tail laterally to allow copulation.

It generally takes 11 days to complete the construction of a nest. Nest may be constructed even in late August. Sometimes when the nest prepared is destroyed by storms and gales, it is soon replaced by a fresh one.

The nest is a loose, flimsy, structure which generally does not last till the next season but those that withstand the rough weather are taken as foundations and fresh nest-building material is brought for their repair. In Sajnakhali and Frazergunge, soft and leafless branches of *Excoecaria, Avicennia* and sometimes branches of *Derris, Ceriops* and *Xylocarpus* species are added. Soft leaves brought by the male are properly arranged in the egg-chamber so as to prevent the eggs from dropping. Green leaves are from time to time added to replace the old dry ones in nests till the fledglings are ready to leave the nests. The size of nests vary largely. The circumferences of five nests measured 100-125 cm (average 113) in Sajnakhali.

The eggs are laid by the third week of June and egg-laying continues till the first week of August depending on the onset of monsoon. Generally three to five eggs are found in a nest but in two nests in Sajnakhali, Sundarban, only two have been found. Some nests were also found without any egg. Incubation period varies from 28 to 30 days. Regurgitation of water and mucous over eggs specially on dry rainless days has been observed. The parent birds also control the humidity by wetting their abdominal feathers to aid fermentation of nest material to help incubation.

### Predation

Predation is largely by the Water Monitor (*Varanus salvator*) which is the most common species of reptile in Sundarban. It not only destroys eggs but also appropriates nestlings.